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## Naval Submarine Medical Research Laboratory on Top of the World

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The [Naval Submarine Medical Research Laboratory \(NSMRL\)](#) conducts research into undersea human systems integration and submarine survival and rescue. Our focus is under water not on top of ice.

We reached a new high – in latitude – when three researchers embarked in early September on the Coast Guard Cutter Healy in the Arctic to evaluate the Submarine Team Behaviors Tool (STBT), a tool designed to let submarine commanders assess the resilience of their tactical teams.

I was part of the NSMRL team, along with Lt. Katherine Couturier, and retired Cmdr. Richard Severinghaus. We met the Healy off the coast of Barrow, Alaska by helicopter and, without delay, headed north to the ice.


The Coast Guard’s mission was to test modern technologies in the detection, surveillance and recovery of simulated oil trapped in or under ice at the polar ice edge. Technologies included hand-launched military-style unmanned aircraft, unmanned underwater vehicles, oil skimmers, remotely operated vehicles, and an Emergency Response Management Application.


This challenging operational backdrop enabled the NSMRL team to comprehensively test the STBT and collect excellent observational data. This was a great opportunity to use the STBT in an operational setting and evaluate the tool’s usefulness and applicability and correlate the results between observers. The outcomes from this exercise will contribute to the


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development of a Submarine Team Performance Manual.

While there has been much written on the technical skills of submarine warfare, there is not a large body of work available to submarine crews on the non-technical, behavioral aspects of submarine teamwork. The STBT collects observable behaviors that characterize the degree of resilience of a tactical team. The STBT measures levels of team resilience through observation and these include dialogue, decision-making, critical thinking, use of bench strength, and problem-solving capacity. By observing teams performing in challenging operations and scenarios, and noting the presence or absence of these behaviors, an experienced observer can gauge team resilience levels.

So why travel to a Coast Guard Cutter north of Alaska to obtain data for a ‘submarine’ research project? Aside from the inherent difficulties in boarding a submarine at sea, Healy offered several advantages that supported NSMRL objectives. Healy had been at sea in an isolated environment since early July. Stores were low and fresh foods were depleted when the team boarded. The ship’s crew was in a condition that roughly resembled a submarine crew at mid to late patrol, our targeted assessment point.

The NSMRL team knew they would be able to evaluate a number of different operational scenarios from high stress, multi-faceted operations to routine underway steaming to piloting in restricted waters, all in a short period of time. Another aspect to be tested was STBT applicability to platforms other than a submarine.

[Vice Adm. Connor, Commander of U.S. Submarine Forces](#), saw great benefit in this tool not only for the Submarine Fleet, but for the Navy as a whole ... if it could be proven universal in application. Correspondingly, by engaging the Healy Commanding Officer, Capt. John Reeves, and Executive Officer, Cmdr. Greg Stanclik, the NSMRL team was able to place the STBT in the hands of the cutter’s leadership to solicit input from a fresh, non-submariner, perspective.

Fortunately, all objectives were met with resounding success. The team brought back numerous observations and recommendations to fine-tune the STBT before its release to the Submarine Fleet for operational use.

The NSMRL team accompanied a multi-disciplinary team including members of the [Coast Guard Research and Development Center](#); Coast Guard Strike Teams; [Coast Guard District 17](#); [Coast Guard Pacific Area Command](#); [Coast Guard Headquarters Office of Research, Development, Test and Evaluation](#); [National Oceanographic Atmospheric Administration](#); [Woods Hole Oceanographic Institute Center for Island, Maritime, and Extreme Environment Security](#); and the [University of Alaska Fairbanks](#).

The Coast Guard Cutter Healy is the United States’ newest and most technologically advanced polar icebreaker. Healy is designed to conduct a wide range of research activities, providing more than 4200 square feet of scientific laboratory space, numerous electronic sensor systems, oceanographic winches, and accommodations for up to 50 scientists. Healy is designed to break 4 ½ feet of ice continuously at three knots and can operate in temperatures as low as 50 below zero. As a Coast Guard Cutter, Healy is also a capable platform for supporting other potential missions in the polar regions, including logistics, search and rescue, ship escort, environmental protection, and enforcement of laws and treaties.

More information about the Healy and Arctic Shield 2013 may be found at <http://www.icefloe.net>.

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